REMARKS

Upon entry of the present amendment, claims 1-6 will have been amended while claims 7 and 8 will have been submitted for consideration by the Examiner.

In view of the herein contained amendments and remarks, Applicants respectfully request reconsideration and withdrawal of each of the outstanding rejections set forth in the above-mentioned Official Action. Such action is respectfully requested and is now believed to be appropriate and proper.

Initially, Applicants wish to thank the Examiner for acknowledging Applicants Claim for Foreign Priority under 35 U.S.C. § 119 as well as for confirming receipt of the certified copy of the priority document. Further, Applicants note with appreciation the Examiner's consideration of all the documents cited in the Information Disclosure Statement filed in the present application by the Examiner's return of a signed and initialed PTO-1449 Form that accompanied the above-noted Information Disclosure Statement.

Further, by virtue of a Notice of Draftsperson's Patent Drawing Review (PTO-948) not being attached to the above-noted outstanding Official Action, Applicants assume that the drawings filed together with the present application have been accepted.

In the outstanding Official Action, the Examiner rejected claims 1-6 under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. The Examiner asserted that there is no disclosure "of the precise circuitry or alternatively software for a

computer to synchronize the pulse output in synchronization with the relative distance between the tool electrode and the workpiece".

Applicants respectfully traverse the above rejection and submit that it is inappropriate. Initially, and prior to setting the forth the reasons why the disclosure of the present application fully complies with the enablement requirement of 35 U.S.C. § 112, Applicants wish to point out that the Examiner is incorrect in his assumption that "precise circuitry" or "software for a computer" is required to fulfill the enablement requirement. It is clearly not a requirement of the patent statute that circuit diagrams or software are provided in every case where a controller is shown. The enablement requirement merely requires that the information contained in the disclosure of an application be sufficient to inform those skilled in the relevant art how to both make and use the claimed invention.

In particular, detailed procedures for making and using the invention may not be necessary if the description of the invention itself is sufficient to permit those skilled in the art to make and use the invention (MPEP § 2164). Further, the specification need not disclose what is well known to those skilled in the art and preferably omits that which is well known to those skilled in the art and already available to the public (MPEP § 2164.05(a)). Thus, in the present situation, Applicants submit that the disclosure of the present application provides a full, clear, adequate and sufficient enablement of the present application.

As is quite clear from the disclosure of the present application, the controller 12 controls the pulsed electro discharge generating circuit 11 so as to emit an appropriate electric discharge pulse so that the voltage is applied only when the distance between the electrodes is near enough to perform a discharge (page 9, lines 5-10). For example, the controller can readily be embodied in a device that receives information regarding the relative distance between the tool electrode and the workpiece, e.g., from a detector or the like, and controls the circuit 11 and the actuator 8, which drives the vibration stage, in synchronism, so as to output the pulse at the appropriate relative distance between the tool electrode and the workpiece.

Detailed electronic circuitry setting forth the internal structure of the controller is not believed to be necessary to comply with 35 U.S.C. § 112. Rather, the description contained in the present application at, e.g., page 9, lines 5-18 is adequate and sufficient to enable one of ordinary skill in the art to understand how to make and use the invention. Accordingly, Applicants respectfully request reconsideration and withdrawal of the outstanding rejection of claims 1-6 as failing to comply with the enablement requirement of 35 U.S.C. § 112.

The Examiner rejected claim 1 under 35 U.S.C. § 102(b) as being anticipated by MARUYAMA (Japanese Patent No. 59-192,425). The Examiner asserted that MARUYAMA adjust the voltage in synchronization with a vibrating movement of the electrode. Applicants respectfully traverse the above rejection and submit that claim 1 is

clearly patentable over MARUYAMA, whether considered under 35 U.S.C. § 102 or even if considered under 35 U.S.C. § 103.

Claim 1 defines a micro electro discharge machining method including, inter alia, controlling a discharge pulse output in synchronization with a change in a relative distance between the tool electrode and the workpiece such that discharge pulse output is generated when the relative distance between the tool electrode and the workpiece becomes sufficiently small such that discharge is performed. It is respectfully submitted that this feature, in the claimed combination, is not disclosed by MARUYAMA. In MARUYAMA, the signals for a vibrating component excited by the AC signals of the machining voltage are separated by a filter, rectified, smoothed and made into a DC voltage proportionate to the amplitude of the vibrating component. MARUYAMA detects variable components of a machining voltage resulting in the application of AC signals and accordingly controls a machining voltage feedback control loop. This is far different than the controlling of the discharge pulse output based upon relative distance as recited in Applicants claim 1. Accordingly, it is respectfully submitted that since MARUYAMA does not disclose the combination of features recited in Applicants claim 1, Applicants claim 1 is clearly patentable thereover.

In the outstanding Official Action, the Examiner rejected claim 4 under 35 U.S.C. § 103 as being unpatentable over HIRAISHI et al. (U.S. Patent No. 4,488,529) in view of MARUYAMA. The Examiner asserted that HIRAISHI et al. has an electric discharge

machining apparatus with a tool electrode, a device for positioning the workpiece in an XY plane and a device for positioning the tool electrode in a direction orthogonal to the XY plane. The Examiner relied on MARUYAMA for teaching a vibrating electrode and adjusting to the voltage in synchronization with the vibrational movements of the electrode. Applicants respectfully traverse the above rejection and submit that claim 4 is clearly patentable over the combination proposed by the Examiner.

In particular, claim 4 includes a tool electrode, a pulsed electric discharge generating circuit, a first device for positioning the workpiece in an XY plane, a second device for positioning the tool electrode in a Z plane, a vibrating member and a controller. In particular, the controller is recited as controlling a discharge pulse in synchronization with a change in the relative distance between the tool electrode and the workpiece such that the discharge pulse is output when the relative distance between the tool electrode and the workpiece becomes sufficiently small such that discharge is performed. It is respectfully submitted that the combination of features as recited in claim 4 is clearly not disclosed, taught nor rendered obvious by the combination of HIRAISHI et al. in view of MARUYAMA as proposed by the Examiner. Accordingly, it is respectfully submitted that claim 4 is clearly patentable over the combination of references recited by the Examiner.

By the present Response, claims 7 and 8 have been submitted for consideration by the Examiner. Claims 7 and 8 are submitted to be allowable both based upon their particular

recitations as well as based upon their dependence from a shown to be allowable independent claim. Accordingly, entry, consideration and an indication of the allowability of claims 7 and 8 is respectfully requested in due course.

Applicants note with appreciation the Examiner's indication that the subject matter in claims 2, 3, 5 and 6 patentably define over the prior art of record and would be allowable if the rejection under 35 U.S.C. § 112, first paragraph is overcome. Nevertheless, in view of Applicants traverse of the rejection under 35 U.S.C. § 112, first paragraph, it is respectfully submitted that claims 2, 3, 5 and 6 are patentable, both for the reasons underlying the Examiner's indication as well as because of their dependence from a shown to be allowable independent claim. Accordingly, an action to this effect is respectfully requested in due course.

SUMMARY AND CONCLUSION

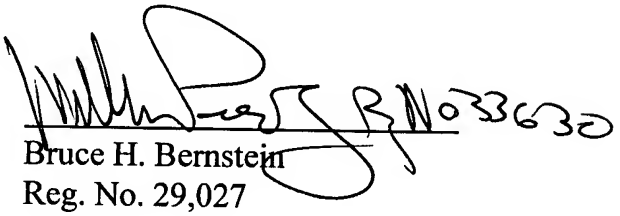
Applicants have made a sincere effort to place the present application in condition for allowance and believe that they have now done so. Applicants have amended several of the claims to clarify the recitations thereof. Applicants have submitted two additional claims for consideration by the Examiner.

Applicants have traversed the Examiner's rejection of the claims under 35 U.S.C. § 112, first paragraph and have shown the same to be inappropriate. Applicants have discussed the disclosure of the present application and have pointed out the significant and substantial deficiencies of the references with respect thereto. Applicants have discussed the disclosures of the references and have shown how these are inadequate to anticipate or render unpatentable the combination of features recited in each of Applicants claims. Applicants have thus accordingly provided a clear evidentiary basis supporting the patentability of all the claims in the present application and respectfully request an indication to such effect in due course.

Any amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Should the Examiner have any questions or comments regarding this Response, or the present application, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,
Takeshi MASAKI et al.



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